

Waste Tire Data and Trends

This document details Washington State waste tire data and trends.

Waste Tire Recycling, Reuse, Disposal and Generation

Annual waste tire recycling, reuse and landfiling data are reported to Ecology each April. All solid waste data are published in the annual solid waste reports. Reported tire data since 2002 is provided below for each calendar year. The table also lists the Ecology estimated waste tire generation data based on the number and type of vehicles licensed in the state. Nearly 7 million vehicles were licensed in Washington in 2012 and estimated to generate 86,763 tons of waste tires (one tire for each passenger car and less than one tire for other types of vehicles).

Annual Waste Tire Data

Calendar Year	Retreaded (tons)	Recycled* (tons)	Fuel (tons)	Landfill (tons)	Waste Tire Generation (tons)
2002	1,170	27,102	2,818	21,273	80,988
2003	12,976	27,753	9,664	22,226	83,886
2004	251	37,568	15,400	15,246	80,766
2005	4,089	53,777	5,167	22,446	83,892
2006	13,266	23,528	9,236	33,697	85,354
2007	4,764	37,529	16,735	50,704	86,978
2008	3,829	46,036	8,440	25,541	87,383
2009	6,164	45,112	10,725	28,834	87,050
2010	10,834	26,775	18,121	23,275	86,817
2011	7,813	30,374	10,450	14,156	87,974
2012	7,059	30,890	10,443	13,554	86,763

* Recycled tires include tire bales.

Annual solid waste reports are available online:

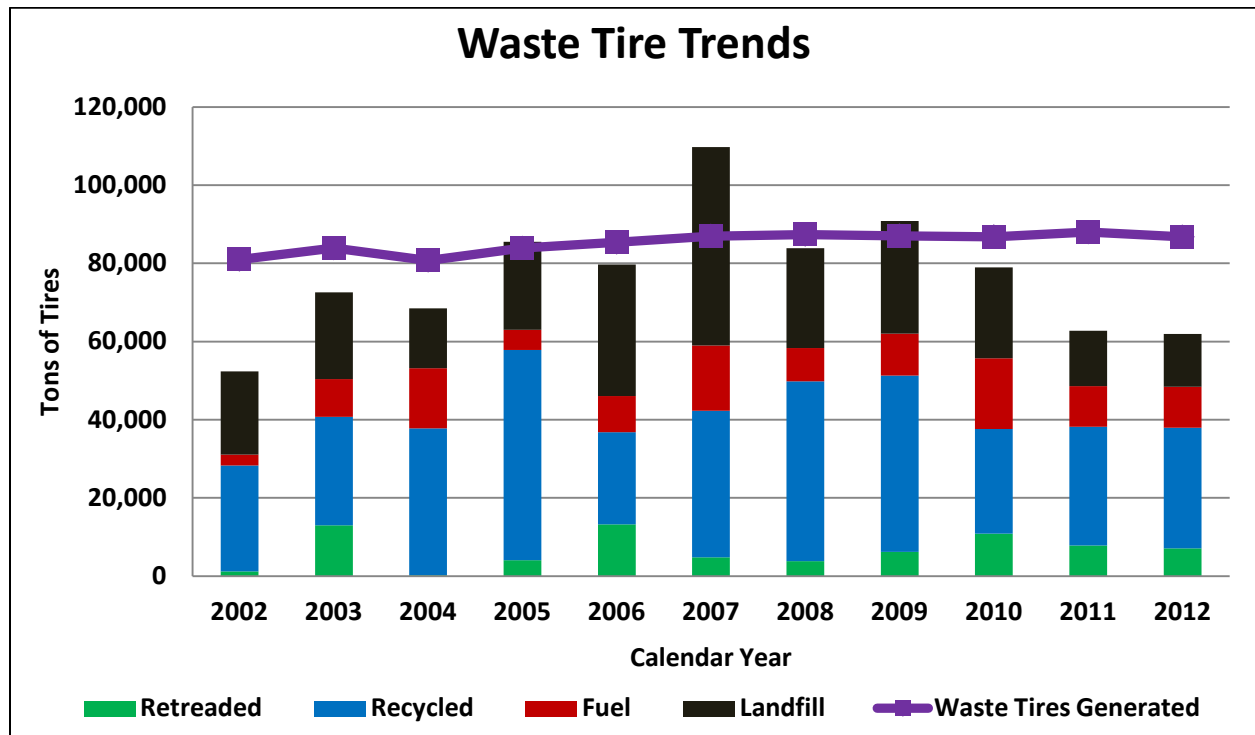
- <http://www.ecy.wa.gov/programs/swfa/solidwastedata/report.asp>

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Waste Tire Data Trends

The graphic below shows trends in the data from the prior table. Several important things to note about the trends include:

- Data reporting during the early years (2002-2004) are not as reliable as later years.
- The data peak in 2007 is impacted by the 32,671 tons of waste tires collected under Ecology cleanup efforts (a link to this data is provided below).
- Ecology cleanup efforts also impact the results in 2008 and 2009, but at lower amounts than in 2007.
- The lower reported numbers in 2011 and 2012 may be affected by delays in new tire purchases (due to the economy).
- Waste tire “generation” is a calculated number.



Ecology waste tire pile cleanup information is available online:

- <http://www.ecy.wa.gov/programs/swfa/tires/pdf/WasteTireData.pdf>

Where Do the Tires Go?

Retreaded Tires

Retreaded tires contain up to 75 percent recycled content. Manufacturing one new truck tire takes 22 gallons of oil. Most of the oil is found in the casing. The retreading process places a new tread on the old tire casing. As a result, it takes only seven gallons of oil to produce a retread.

Recycled Tires

Tires can be recycled by grinding up the rubber and remolding it for other purposes. Some uses of ground rubber include groundcover under playground equipment, running track material, and components of sports and playing fields. Tires can also be cut, punched or stamped into various rubber products, including floor mats, belts, gaskets, shoe soles, dock bumpers, seals, muffler hangers, shims and washers.

The ground rubber product market has shown the greatest growth in recycled tire materials. However, the conversion to synthetic field turfs for football, soccer and other playing surfaces will be limited by the finite number of athletic fields. The cut, punched and stamped rubber products market is limited to tires that do not have steel belts, known as “bias-ply” tires. There is a limited supply of bias-ply tires available for this market.

The tire recycling category includes bales used in construction projects. A tire bale contains about 100 passenger tires compressed into a block wrapped with galvanized steel bands. Tire bales can take the place of other fill materials at some construction sites. Tire bales can be used in road base, noise reduction walls, erosion control, firing ranges and racetrack walls.

Fuel Use

Because of their high heating value, waste tires make good fuel. Tire-derived fuel (TDF) can provide up to 15,000 British thermal units (BTUs) per pound, which is higher than coal, oil or wood. Burning waste tires is not recycling (under the state’s definition), but we consider it a higher use than landfilling. Tires serve as fuel either shredded or whole, depending on the type of conveyor or combustion device.

In Washington, only one cement kiln currently uses whole tires as fuel. The high BTUs provided by tires allow a cement plant to reduce use of other fuel sources, which results in cost savings. Cement kilns operate at very high temperatures (around 2,600°F) and have long residence times. This results in complete combustion of the tires. The metal in the steel belted tires combines with the cement product. Compared to coal, use of tires in cement kilns has been reported to lower some nitrogen oxide emissions.

Landfill Disposal

Tires are a problem in landfills because they are difficult to compact and do not decompose easily. Tires take up valuable landfill space. Over time, whole tires can float to the top, working their way up through the waste and soil. Tires disposed of in landfills are usually shredded or at least cut in half before disposal.